Future Wireless Working Group Home

Group Summary

Internet2 and several of its members established the Future Wireless Working Group to explore areas of collaboration regarding the use of emerging wireless technologies on campuses and across the R&E community. The focus of the group has been the recently commercialized Citizens Broadband Radio Service (CBRS) spectrum and its use by campuses. CBRS presents, for the first time, the opportunity for campuses to own and operate fully private LTE and soon 5G mobile and fixed wireless broadband networks (much like they run private Wi-Fi networks) without the need to spend on expensive spectrum licenses. This was made possible by the FCC's adoption of a shared access model for the 150 MHz of mid-band spectrum (3550 MHz to 3700 MHz) between commercial and Federal/DoD incumbent users.

The shared model employs dynamic spectrum management to mitigate contention across three tiers of priority. The highest priority is for Incumbent Access (IA) users of the spectrum (primarily US Navy radar systems) followed by Priority Access License (PAL) auction winners, which are granted interference protections for 70 MHz of the 150 MHz, and capped up to 40 MHz each, and lastly, General Authorized Access (GAA) users. While GAA users are not provided with any interference protections, their access is coordinated by a cloud-based spectrum access system (SAS). This spectrum management and coordination is performed by FCC approved Spectrum Access System (SAS) administrators via cloud-based systems. Each university private CBRS network operator would register their network with a single SAS administrator using a Certified Professional Installer in order to gain access to CBRS spectrum. SAS registration and fees apply and entails commercial agreements with each SAS administrator.

Private LTE networks provide a full mobile and fixed wireless experience including Quality of Service (QoS), seamless high-speed hand-offs, hardened security (SIM cards), low latency, longer range and less power consumption versus Wi-Fi. These capabilities allow campuses to support a full range of mission critical applications, extending their networks to remote locations, improved indoor and outdoor wireless coverage, support research activities, and potentially neutral host network access and macro off-load business models with traditional and emerging Mobile Network Operators (MNOs) and Cable Mobile Virtual Network Operators (MVNOs) .

This working group hosts topical discussions as well as meetings with key ecosystem participants including SAS providers, CBRS equipment providers and managed service providers, with the goal of providing community recommendations and actions.

Participating Institutions

- Arizona State University
- Boston University
- Brown University
- Claflin University
- Clemson University
- Duke University
- Georgia State University
- Indiana University
- Princeton University
- Texas A&M
- The George Washington University
- University of Kentucky
- University of Buffalo
- University of Colorado
- University of Georgia
- University of Maryland
- University of Michigan
- University of North Carolina
- University of Virginia
- University of Delaware
- Utah Education Network
- Virginia Tech
- William and Mary

Link to Meeting Summaries

How to Participate

This group is open only to Internet2 members. If you are an Internet2 member and are interested in participating in this group, please request to be added here.